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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,532	07/30/2001	Hiroaki Nasu	Q63109	9048
7590 11/19/2003 SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC 2100 Pennsylvania Avenue, N.W. Washington, DC 20037-3202			EXAMINER HRUSKOCI, PETER A	
			ART UNIT 1724	PAPER NUMBER

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 09/916,532	<b>Applicant(s)</b> NASU ET AL.	
	<b>Examiner</b> Peter A. Hruskoci	<b>Art Unit</b> 1724	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 September 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 and 6-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
     a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 6, 9, 10, 12-17, and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cassidy et al.. Cassidy et al. disclose (see col. 2 line 39 through col. 5 line 38) a process for treating a chromate waste liquid containing an organic component substantially as claimed. The claims differ from Cassidy et al. by reciting that the chromium precipitation accelerating agent comprises a calcium component. It is submitted that the addition of calcium hydroxide to adjust the pH in Cassidy et al. would appear to accelerate chromium precipitation as in the instant invention. It would have been obvious to one skilled in the art to modify the method of Cassidy et al. by adding the calcium component or hydroxide to accelerate the precipitation of chromium, to aid in removing chromium from the waste liquid. The specific pH adjusting agent and pH utilized, the chromate concentration of the waste liquid, and neutralization of the waste liquid prior to disposal, would have been an obvious matter of process optimization to one skilled in the art, depending on the specific waste liquid treated and results desired, absent a sufficient showing of unexpected results.

Claim 7 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cassidy et al. as above, and further in view of Kreisler. The claims differ from Cassidy et al. as applied above by reciting that the precipitation accelerating agent comprises calcium chloride. Kreisler disclose (see col. 5 line 21 through col. 6 line 30) that it is known in the art to add calcium chloride in combination with sodium and calcium

hydroxide to an industrial waste stream containing chromium and chelating agents, to aid in precipitating and removing chromium from the stream. It would have been obvious to one skilled in the art to modify the process of Cassidy et al. by addition of calcium chloride in view of the teachings of Kreisler, to aid in precipitating and removing chromate from the waste liquid. The specific amount of calcium chloride utilized, would have been an obvious matter of process optimization to one skilled in the art, depending on the specific waste liquid treated and results desired, absent a sufficient showing of unexpected results.

Claim 8 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cassidy et al. as above, and further in view of Leggett et al.. The claims differ from Cassidy et al. as applied above by reciting that the precipitation accelerating agent comprises magnesium chloride. Leggett et al. disclose (see col. 1 line 42 through col. 2 line 60) that it is known in the art to add magnesium chloride and sodium hydroxide to a waste stream containing chromium and chelating agents, to aid in precipitating and removing chromium from the stream. It would have been obvious to one skilled in the art to modify the process of Cassidy et al. by addition of magnesium chloride in view of the teachings of Leggett et al., to aid in precipitating and removing chromate from the waste liquid. The specific amount of magnesium chloride utilized, would have been an obvious matter of process optimization to one skilled in the art, depending on the specific waste liquid treated and results desired, absent a sufficient showing of unexpected results.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cassidy et al. as above, and further in view of Gaughan et al.. The claim differs from Cassidy et al. as applied above by reciting that the waste liquid comprises a zinc component which is decreased at a second pH. Gaughan et al. disclose (see col. 3 line 19 through col. 4 line 73) that it is known in the art to add calcium and magnesium components to an aqueous

waste stream containing chromium and zinc, to aid in precipitating and removing chromium and zinc from the stream. It would have been obvious to one skilled in the art to modify the process of Cassidy et al. by treating a waste liquid comprising a zinc component in view of the teachings of Gaughan et al., to aid in precipitating and removing chromate and zinc from the waste liquid. The specific pH utilized, would have been an obvious matter of process optimization to one skilled in the art, depending on the specific waste liquid treated and results desired, absent a sufficient showing of unexpected results.

Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cassidy et al. and Leggett et al. as above, and further in view of Heskett. The claims differ from the references as applied above by reciting that the chromate waste liquid is neutralized, and a dissolved magnesium component is removed by reverse osmosis or ion exchange. Heskett disclose (see col. 2 lines 20-58) that it is known in the art to utilize ion exchange or reverse osmosis to aid in removing magnesium from water systems. It would have been obvious to one skilled in the art to modify the process of the references as applied above by utilizing the recited reverse osmosis or ion exchange in view of the teachings of Heskett, to aid removing dissolved magnesium from the waste liquid. The use of acid to effect neutralization prior to disposal, would have been an obvious matter of process optimization to one skilled in the art, depending on the specific waste liquid treated and results desired, absent a sufficient showing of unexpected results.

Applicants argue that in Cassidy et al. the pH is preferably from about 8.2 to 9.0, and there is no teaching or criticality with respect to a pH of 9 or higher. It is submitted that this preferred range is considered a sufficient teaching or suggestion to utilize a pH of 9,

which is included in the pH recited in the instant claims. Furthermore, Cassidy et al. is not limited to a pH of 9, and includes a pH between about 9 and about 10.

Applicants allege that Examples 1 and 5 of the instant specification clearly show unexpectedly that  $\text{Ca(OH)}_2$  is effective for both (a) increasing the pH of the chromate waste liquid to 9 or higher and (b) precipitating a chromate component from the chromate waste liquid. It is submitted that the specific test conditions utilized to produce the results shown in the instant Examples are not commensurate with the scope of the instant claims. Furthermore, applicants have not provided sufficient comparative evidence with NaOH to support the above allegation.

Applicants argue that NaOH and KOH of Cassidy et al. are clearly excluded from the claimed chromium accelerating agent of claim 1. It is noted that claim 1 recites "a process comprising" which terminology fails to exclude the use of other agents such as NaOH and KOH. Furthermore, it is noted that when calcium or magnesium chloride are used as the accelerating agent, NaOH is used to adjust the pH in the instant invention.

Applicants argue that the Examples of Cassidy show poor results with the addition of NaOH to adjust the pH, and then the addition of a Mg or Ca component, and the subject matter of instant claim 25 is drawn to an opposite sequence which could not possibly be suggested by Cassidy et al. It is submitted that the teachings of Kriesler and Leggett et al. appear to show this sequence. Furthermore, applicants have not supplied sufficient comparative evidence with the prior art as applied above to support the above argument.

Applicants argue that there is no teaching or suggestion in Kriesler that calcium chloride would be a chromium precipitation accelerating agent, and there is no connection between calcium chloride and chromium by Kriesler. It is submitted that the

metals that can be precipitated and separated in Kreisler include chromium. It is further submitted that the addition of calcium chloride in Kreisler enhances the precipitation of dissolved metals such as chromium when added with a base such as NaOH and  $\text{Ca(OH)}_2$ .

Applicants argue that the magnesium hydroxide of Leggett et al. is used for an entirely different purpose in a different type of process. It is submitted that Leggett et al. as applied above, discloses the addition of magnesium chloride or hydroxide, followed by sodium hydroxide to adjust the pH to about 9.5, which appears to cause the precipitation of metal ions such as chromium from the waste streams as in the instant process. The addition of ozone to destroy metal chelates as in Leggett et al. is not excluded from the instant claims.

Applicants arguments concerning Heskett and Gaughan et al. are based on the propriety of Cassidy et al., which is deemed properly applied for reasons stated above.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the

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advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter A. Hruskoci whose telephone number is 703-308-3839. The examiner can normally be reached on Monday through Friday from 6:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on 703-308-1261. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

  
Peter A. Hruskoci  
Primary Examiner  
Art Unit 1724

11/15/03